

STATEMENT OF BASIS

PowerSouth Energy Cooperative McWilliams Power Plant

Andalusia, Alabama
Covington County
603-0001

This proposed Renewal Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above-referenced applicant has applied to renew the existing Title V Permit, which was originally issued on October 27, 2006 with an effective date of November 1, 2006. The applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents, which were submitted on February 9, 2016, and are attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

PowerSouth Energy Cooperative, Inc. was issued its existing Major Source Operating Permit (MSOP) on August 15, 2011 with an effective date of August 15, 2011 and an expiration date of August 14, 2016. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. Based on this rule, the application for renewal was due to the Department no later than February 14, 2016. No additional information was deemed necessary for processing of this MSOP.

The McWilliams Power Plant is owned and operated by PowerSouth Energy Cooperative, Inc. (PowerSouth). This facility is located in Andalusia, Covington County, Alabama. The significant sources of air pollutants at this facility are McWilliams Unit 4 and Vann Units 1 and 2. McWilliams Unit 4 is a combined cycle electric generating unit fired by natural gas with distillate fuel oil backup. The combustion turbine (CT) associated with Unit 4 powers a generator rated at 106 Megawatts (MW). The natural gas fired duct burner for Unit 4 has a heat input rating of 83.3 MMBtu/hr and provides the capability to produce additional steam from the heat recovery steam generator (HRSG). The steam produced by the Unit 4 HRSG is used to run three steam turbines with ratings of 9.5 MW, 9.5 MW, and 20 MW. Unit 4 may also operate in simple cycle mode (i.e., stack gas may exit a bypass prior to the duct burner and HRSG). This unit is also equipped with water injection into the combustion chamber of the CT that limits NO_x production during the combustion process.

Vann Units 1 and 2 are each combined cycle electric generating units fired exclusively with natural gas. Each of the combustion turbines powers a generator rated at 166 MW. The Vann units are equipped with HRSGs, with no duct burners. The steam from the HRSGs is utilized to power a single steam turbine which is rated at 164 MW. The NO_x emissions from each of the Vann Units are controlled by Selective Catalytic Reduction (SCR).

Also associated with this facility, the McWilliams Power Plant operates a 165 hp emergency fire pump driver reciprocating internal combustion engine (RICE), a 225 hp

fire pump driver RICE, and a 670.5 hp emergency backup generator RICE. These units are emergency use only units (as defined by 40 CFR 63 Subpart ZZZZ) and operate minimally for required testing and maintenance. These three emergency units are existing units located at an area source of Hazardous Air Pollutants (HAPs) emissions and therefore, subject to regulations found in 40 CFR 63 Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)*.

This facility utilizes two 300,000 gallon distillate fuel oil storage tanks. Since the vapor pressure of the material stored in these vessels would be less than 0.05 psia, these tanks would not be subject to New Source Performance Standards for Volatile Organic Liquid Storage Vessels, NSPS, Subpart Kb (based upon the October 15, 2003 revision). These tanks have potential emissions less than 5 TPY of criteria pollutants and less than 1000 lbs/yr of HAPs and therefore should be classified as insignificant sources.

The significant sources of air pollutants at this facility are:

- One (1) 106 MW Natural Gas/Distillate Oil Fired Combustion Turbine with an 83.3 MMBtu/hr Natural Gas fired Duct Burner and Heat Recovery Steam Generator.
- Two (2) 166 MW Natural Gas Fired Combustion Turbines each with Heat Recovery Steam Generators and Selective Catalytic Reduction (SCR)
- One (1) 165 HP Existing Emergency Fire Pump Driver RICE
- One (1) 225 HP Existing Emergency Fire Pump Driver RICE
- One (1) 670.5 HP Existing Emergency Backup RICE.

Additionally, the applicable requirements of Cross-State Air Pollution Rule (CSAPR) will be included in this renewal.

The facility reported a total of 2,701,576 Tons of Green House Gas Emission (GHG). This is an estimate of the potential emissions. The estimate was based on 40 CFR 98 Subpart C Tables C-1, C-2 and A-1.

106 MW Combined-Cycle Combustion Turbine Unit

The combined-cycle combustion turbine unit (McWilliams Unit 4) was subject to a Prevention of Significant Deterioration (PSD) Review in which BACT was established for NO_x, CO, VOC, PM, and visible emissions. The combined-cycle combustion turbine is also subject to the Federal New Source Performance Standards (NSPS) contained in 40 CFR Part 60, Subpart GG, and the duct burner is subject to NSPS, Subpart Dc. The combined cycle units are also subject to the Acid Rain Program and the Cross-State Air Pollution Rule (CSAPR). The combined cycle units' expected emissions and the associated standards are listed below.

Emission Standards

Opacity:

- Except during startup, shutdown, and load change, visible emissions from this unit shall not exceed 10% opacity.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The opacity standard applies at all times except during startup, shutdown, and load change.

Particulate Matter (PM):

- The combined PM emissions from the combustion turbine/duct burner stack shall not exceed 0.013 lb/MMBtu & 16.7 lbs/hr when firing natural gas and 0.017 lb/MMBtu & 22.1 lb/hr when firing distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The PM emission standard applies at all times except during startup, shutdown, and load change.

- The PM emissions from the duct burner shall not exceed 0.015 lb/MMBtu & 1.3 lbs/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

Sulfur Dioxide (SO₂):

- The SO₂ emissions from the combustion turbine shall not exceed 150 ppmvd (at 15% O₂) or a fuel sulfur limit of 0.8% by weight.

(40 CFR Part 60 Subpart GG)

- The sulfur content of the distillate fuel oil shall not exceed 0.05% by weight.

(ADEM Admin. Code r. 335-3-14-.04) Anti-PSD

- The combined cycle unit is subject to the Acid Rain Regulations. This unit is not allocated SO₂ allowances under Phase II of the Acid Rain Program. This unit shall hold sufficient allowances in the unit account to cover annual SO₂ emissions.

(ADEM Admin. Code r. 335-3-18-.01 and 40 CFR Part 73)

Nitrogen Oxides (NO_x):

- The NO_x emissions from the combustion turbine/duct burner stack

shall not exceed 25 ppmvd at 15% O₂ & 118 lb/hr when firing natural gas in premix mode, 42 ppmvd at 15% O₂ & 198 lb/hr when firing natural gas in diffusion mode, and 65 ppmvd at 15% O₂ & 307 lb/hr when firing distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- The NO_x emissions from the combustion turbine/duct burner stack when operating during peak load shall not exceed 42 ppmvd at 15% O₂ when firing natural gas and 88 ppmvd at 15% O₂ when firing distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- The NO_x emissions from the duct burner shall not exceed 0.1 lb/MMBtu and 8.3 lb/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- The Nitrogen Oxides emission limit when burning a mixture of natural gas and fuel oil will be computed using the following formula:

$$E = \frac{(H_g)(E_g) + (H_o)(E_o)}{H_g + H_o}$$

Where:

E = NO_x emission limit (ppm)

H_g = Heat input from natural gas (Btu)

E_g = Natural gas emission limit (ppm)

H_o = Heat input from fuel oil (Btu)

E_o = Fuel oil emission limit (ppm)

The NO_x emission standards apply at all time except during startup, shutdown, and load change.

- The NO_x emissions from the combustion turbine shall not exceed 75 ppmv adjusted for heat rate and fuel bound nitrogen, based upon 4-hour rolling averages.

(40 CFR Part 60 Subpart GG)

Carbon Monoxide (CO):

- The CO emissions from the combustion turbine/duct burner stack shall not exceed 100 ppmvd at 15% O₂ & 194 lb/hr when firing natural gas or distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- The CO emissions from the duct burner shall not exceed 0.08 lb/MMBtu & 6.6 lb/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The CO emission standards apply at all time except during startup, shutdown, and load change.

Volatile Organic Compounds (VOC):

- The VOC emissions from the combustion turbine/duct burner shall not exceed 15 ppmvd at 15% O₂ & 21.5 lb/hr when firing natural gas or distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- The VOC emissions from the duct burner shall not exceed 0.03 lb/MMBtu & 2.5 lb/hr when firing distillate fuel oil.

(ADEM Admin. Code r. 335-3-14-.04)

The VOC emission standards apply at all time except during startup, shutdown, and load change.

Operational:

- The combustion turbine shall not fire more than 8500 x 10⁶ scf of natural gas and no more than 7.66 x 10⁶ gallons of distillate fuel oil in any consecutive 12-month period. The duct burner shall not burn more than 500 x 10⁶ scf of natural gas in any consecutive 12-month period.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- Except for periods of startup and shutdown, this source may operate at the lowest load for which the unit has been verified by compliance tests to meet the emission standards for carbon monoxide, nitrogen oxides, and volatile organic compounds, provided that ambient air modeling confirming that all ambient air standards would be met at the load tested has been completed. The Department must approve in writing of any change to the lowest load of the unit prior to operating at such load.

(ADEM Admin. Code r. 335-3-14-.04) BACT

Expected Emissions

Particulate Matter (PM) and Opacity:

- The expected PM emission rate from this unit is approximately 0.0066 lb/MMBtu based on AP-42 emission factors. No visible emissions would be expected while firing natural gas or distillate fuel oil.

Sulfur Dioxide (SO₂):

- Natural gas is the primary fuel for this unit, resulting in an emission rate of approximately 0.0006 lb/MMBtu based on AP-42 emission factors. The sulfur content of the fuel oil burned in this unit is restricted to no greater than 0.05% by weight. The sulfur content of natural gas should also be much lower than the NSPS, Subpart GG, limit of 0.8% by weight.

Nitrogen Oxides (NO_x):

- During initial compliance testing, the NO_x emission rates from the unit were below the permitted allowable emissions limits, with the exception of natural gas firing operating in diffusion mode. PowerSouth conducted testing to show that the NO_x limit while in diffusion mode could be met down to a load of 60 MW. The existing permit contains a condition which restricts operation of the unit to loads greater than or equal to 60 MW while operating in diffusion mode and firing natural gas. PowerSouth requested to modify this condition to allow the source to operate at the lowest load for which the unit has been verified by compliance tests to meet the emission standards for carbon monoxide, nitrogen oxides, and volatile organic compounds. The following are the emission rates indicated by the initial performance testing:

| Operating Condition | NO_x (ppmvd @ 15% O₂) | NO_x (lb/hr) |
|----------------------------|---|-----------------------------------|
| Natural Gas - Premix | 19.17 | 100.14 |
| Natural Gas - Diffusion | 40.06 | 194.79 |
| Fuel Oil | 37.41 | 120.36 |
| Duct Burner | 0.001 lb/MMBtu | 5.30 |

Carbon Monoxide (CO):

- During initial compliance testing, the CO emission rates from the unit were below the permitted allowable emissions limits. The following are the emission rates indicated by initial performance testing:

| Operating Condition | CO (ppmvd @ 15% O₂) | CO (lb/hr) |
|----------------------------|---|-----------------------|
| Natural Gas - Premix | 3.83 | 7.05 |
| Natural Gas - Diffusion | 3.84 | 7.58 |
| Fuel Oil | 2.58 | 5.05 |

| | | |
|-------------|----------------|-----|
| Duct Burner | 0.003 lb/MMBtu | 4.0 |
|-------------|----------------|-----|

Volatile Organic Compounds (VOC):

- During initial compliance testing, the VOC emission rates from the unit were below the permitted allowable emissions limits. The following are the emission rates indicated by initial performance testing:

| Operating Condition | VOC (ppmvd @ 15% O ₂) | VOC (lb/hr) |
|-------------------------|--------------------------------------|----------------|
| Natural Gas - Premix | <0.40 | <0.92 |
| Natural Gas - Diffusion | 0.70 | 1.18 |
| Fuel Oil | <0.35 | <0.46 |
| Duct Burner | <0.001 lb/MMBtu | <0.46 |

Periodic monitoring and Compliance Assurance Monitoring (CAM)

Particulate Matter (PM) and Opacity:

- Based on the expected levels of emissions as compared to the regulatory allowable emission limits, periodic monitoring of opacity and particulate matter emissions is not considered necessary. Additionally the only control device for the CT is water injection that is only used to control NO_x emissions; therefore, CAM is not applicable to PM and Opacity.

Sulfur Dioxide (SO₂):

- This unit is not allocated annual SO₂ allowances through the Acid Rain Program. However this unit must hold enough allowances to cover their annual SO₂ emissions. 40 CFR 75 provisions are utilized to track annual SO₂ emissions. Monitoring the sulfur content (≤ 0.05%) of the fuel oil burned in this unit should provide reasonable assurance that the unit is meeting the SO₂ emission limits. Additionally the only control device for the CT is water injection that is only used to control NO_x emissions; therefore, CAM is not applicable to SO₂.

Nitrogen Oxides (NO_x):

- The combined-cycle combustion turbine unit is required by the current Title V and PSD permits to operate continuously on the exhaust stack a NO_x continuous emission monitoring system (CEMS). The CEMS is used to demonstrate compliance with the Best Available Control Technology (BACT) emission limits, the Acid Rain Program, and CSAPR.
- Under the CAM regulations (40 CFR Part 64), facilities are required to prepare and submit monitoring plans for certain pollutant-specific emissions units (PSEUs) with the initial or renewal Title V Operation

Permit Application. Based on 40 CFR §64.2, the only pollutant potentially subject to CAM would be NO_x since it is the only pollutant which is controlled by an active control device and the potential uncontrolled emission rate is greater than 100 tons per year. 40 CFR §64.2(b)(1)(vi) provides exemptions for the CAM regulations including using CEMS as a continuous compliance determination method (CCDM). 40 CFR §64.2(b)(1)(vi) states that the requirements of CAM shall not apply to any of the emission limitations or standards for which a part 70 or 71 permit specifies a CCDM. The CEMS would therefore be a compliance determiner for each of the applicable NO_x limits based upon the associated averaging times. The combined-cycle combustion turbine unit meets specific CAM exemptions (40 CFR 64.2(b)(1)(vi)), thereby making CAM regulations non-applicable for this unit.

VOC and CO:

- Based on the low expected levels of emissions as compared to the regulatory allowable emission limits, no periodic monitoring of VOC and CO emissions is considered necessary. Additionally the only control device for the CT is water injection that is only used to control NO_x emissions; therefore, CAM is not applicable to VOC and CO.

Record Keeping and Reporting

- Records which document monthly and rolling 12-month total natural gas and fuel oil usage shall be maintained in a form suitable for inspection, shall be maintained for a period of at least five years following said recording, and shall be made available upon request.

(ADEM Admin. Code r. 335-3-14-.04)

- Records documenting the sulfur content of the fuel burned in this unit shall be kept at the facility in a form suitable for inspection for a period of at least five years following said recording.

(ADEM Admin. Code r. 335-3-16-.05(c))

- Records documenting the load (MW) at which the turbine was operated (1-hour averages) and the mode in which it was operated (premix, diffusion) shall be kept at the facility in a form suitable for inspection for a period of at least five years following said recording.

(ADEM Admin. Code r. 335-3-16-.05(c))

- The facility shall comply with the recordkeeping and reporting requirements of CSAPR.

(ADEM Admin. Code r. 335-3-5-.31, 335-3-5-.35, 335-3-8-.33, 335-3-

8-.37, 335-3-8-.65, and 335-3-8-.69)

Cross-State Air Pollution Rule

- These units are subject to the applicable provisions of Cross-State Air Pollution Rule (CSAPR) to include all applicable provisions of the SO₂ Group 2 Trading Program requirements.

(ADEM Admin. Code r. 335-3-5-.06 through 335-3-5-.36)

- These units are subject to the applicable provisions of Cross-State Air Pollution Rule (CSAPR) to include all applicable provisions of the NO_x Annual Trading Program requirements.

(ADEM Admin. Code r. 335-3-8-.07 through 335-3-8-.65)

Two (2) 166 MW Natural Gas Fired Combustion Turbines

The combustion turbine units (Vann Units 1 & 2) was subject to a Prevention of Significant Deterioration (PSD) Review in which BACT was established for NO_x, CO, VOC, PM, and visible emissions. The combustion turbines are also subject to the Federal New Source Performance Standards (NSPS) contained in 40 CFR Part 60, Subpart GG. The combined cycle units are also subject to the Acid Rain Program and the Cross-State Air Pollution Rule (CSAPR). The combined cycle units' expected emissions and the associated standards are listed below.

Emission Standards

Opacity:

- Except during startup, shutdown, and load change, visible emissions from each combustion turbine unit shall not exceed 10% opacity.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The opacity standard applies at all times except during startup, shutdown, and load change.

Particulate Matter (PM):

- The PM emissions from each combustion turbine stack shall not exceed 0.012 lb/MMBtu & 22.2 lbs/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The PM emission standard applies at all times except during startup, shutdown, and load change.

Sulfur Dioxide (SO₂):

- The SO₂ emissions from each combustion turbine shall not exceed 150 ppmvd (at 15% O₂) or a fuel sulfur limit of 0.8% by weight.

(40 CFR Part 60 Subpart GG)

- The combustion turbine units are subject to the Acid Rain Regulations. This unit is not allocated SO₂ allowances under Phase II of the Acid Rain Program. These units shall hold sufficient allowances in the unit account to cover annual SO₂ emissions.

(ADEM Admin. Code r. 335-3-18-.01 and 40 CFR Part 73)

Nitrogen Oxides (NO_x):

- The NO_x emissions from each combustion turbine stack shall not exceed 0.013 lb/MMBtu & 26.2 lb/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The NO_x emission standard applies at all time except during startup, shutdown, and load change.

- The NO_x emissions from each combustion turbine shall not exceed 75 ppmv adjusted for heat rate and fuel bound nitrogen, based upon 4-hour rolling averages.

(40 CFR Part 60 Subpart GG)

Carbon Monoxide (CO):

- The CO emissions from each combustion turbine stack shall not exceed 0.04 lb/MMBtu & 80.72 lb/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The CO emission standard applies at all time except during startup, shutdown, and load change.

Volatile Organic Compounds (VOC):

- The VOC emissions from each combustion turbine shall not exceed 0.004 lb/MMBtu & 8.37 lb/hr.

(ADEM Admin. Code r. 335-3-14-.04) BACT

The VOC emission standard applies at all time except during startup, shutdown, and load change.

Operational:

- The combustion turbines shall only fire natural gas.

(ADEM Admin. Code r. 335-3-14-.04) BACT

- Except for periods of startup and shutdown, this source may operate at the lowest load for which the unit has been verified by compliance tests to meet the emission standards for carbon monoxide, nitrogen oxides, and volatile organic compounds, provided that ambient air modeling confirming that all ambient air standards would be met at the load tested has been completed. The Department must approve in writing of any change to the lowest load of the unit prior to operating at such load.

(ADEM Admin. Code r. 335-3-14-.04) BACT

Expected Emissions

Particulate Matter (PM) and Opacity:

- During initial compliance testing, the PM emission rates from the unit were below the permitted allowable emissions limits. No visible emissions would be expected from these units since both units exclusively utilize natural gas as fuel. Following are the emission rates indicated by initial performance testing:

| Unit | PM (lb/MMBtu) | PM (lb/hr) |
|-------------|------------------|---------------|
| Vann Unit 1 | 0.004 | 6.92 |
| Vann Unit 2 | 0.004 | 8.58 |

Sulfur Dioxide (SO₂):

- Natural gas is the primary fuel for each unit, resulting in an emission rate of approximately 0.0006 lb/MMBtu based on AP-42 emission factors.

Nitrogen Oxides (NO_x):

- During initial compliance testing, the NO_x emission rates from the units were below the permitted allowable emissions limits. Following are the worst case emission rates indicated by the initial performance testing:

| Unit | NO _x (lb/MMBtu) | NO _x (lb/hr) |
|-------------|-------------------------------|----------------------------|
| Vann Unit 1 | 0.011 | 23.9 |
| Vann Unit 2 | 0.012 | 24.0 |

Carbon Monoxide (CO):

- During initial compliance testing, the CO emission rates from the unit were below the permitted allowable emissions limits. Following are the emission rates indicated by initial performance testing:

| Unit | CO (lb/MMBtu) | CO (lb/hr) |
|-------------|------------------|---------------|
| Vann Unit 1 | 0.034 | 51.01 |
| Vann Unit 2 | 0.026 | 38.81 |

Volatile Organic Compounds (VOC):

- During initial compliance testing, the VOC emission rates from the unit were below the permitted allowable emissions limits. Following are the emission rates indicated by initial performance testing:

| Unit | VOC (lb/MMBtu) | VOC (lb/hr) |
|-------------|-------------------|----------------|
| Vann Unit 1 | 0.0033 | 5.40 |
| Vann Unit 2 | 0.0024 | 4.42 |

Periodic monitoring and Compliance Assurance Monitoring (CAM)

Particulate Matter (PM) and Opacity:

- Based on the expected levels of emissions as compared to the regulatory allowable emission limits, periodic monitoring of opacity and particulate matter emissions is not considered necessary. Additionally the only control device for the CT is an SCR that is only used to control NO_x emissions; therefore, CAM is not applicable to PM and Opacity.

Sulfur Dioxide (SO₂):

- These units are not allocated annual SO₂ allowances through the Acid Rain Program. However they must hold enough allowances to cover their annual SO₂ emissions. 40 CFR 75 provisions are utilized to track annual SO₂ emissions. Monitoring the sulfur content ($\leq 0.05\%$) of the fuel oil burned in these units should provide reasonable assurance that the unit is meeting the SO₂ emission limits. Additionally the only control device for the CT is an SCR that is only used to control NO_x emissions; therefore, CAM is not applicable to SO₂.

Nitrogen Oxides (NO_x):

- The combustion turbine units are required by the current Title V and PSD permits to operate continuously on the exhaust stack a NO_x continuous emission monitoring system (CEMS). The CEMS is used

to demonstrate compliance with the Best Available Control Technology (BACT) emission limits, the Acid Rain Program and CSAPR.

- Under the CAM regulations (40 CFR Part 64), facilities are required to prepare and submit monitoring plans for certain pollutant-specific emissions units (PSEUs) with the initial or renewal Title V Operation Permit Application. Based on 40 CFR §64.2, the only pollutant potentially subject to CAM would be NO_x since it is the only pollutant which is controlled by an active control device and the potential uncontrolled emission rate is greater than 100 tons per year. 40 CFR §64.2(b)(1)(vi) provides exemptions for the CAM regulations including using CEMS as a continuous compliance determination method (CCDM). 40 CFR §64.2(b)(1)(vi) states that the requirements of CAM shall not apply to any of the emission limitations or standards for which a part 70 or 71 permit specifies a CCDM. The CEMS would therefore be a compliance determiner for each of the applicable NO_x limits based upon the associated averaging times. The combined-cycle combustion turbine unit meets specific CAM exemptions (40 CFR 64.2(b)(1)(vi)), thereby making CAM regulations non-applicable for these units.

VOC and CO:

- Periodic monitoring for the CO and VOC emission limitations would be the CO CEMS. Both VOC and CO emissions would be expected to increase with incomplete combustion. Maintaining the CO emissions, as indicated by the CEMS, at no greater than the permitted limits, would be an indicator of complete combustion and therefore also an indicator of compliance with the CO and VOC emission limits.

Recordkeeping and Reporting

- Records documenting the load (MW) at which the turbine was operated (1-hour averages) shall be kept at the facility in a form suitable for inspection for a period of at least five years following said recording.

(ADEM Admin. Code r. 335-3-16-.05(c))

- An emission report as defined by 40 CFR 60.7(c) shall be submitted to the Department within 30 days of the end of the calendar quarter.

(ADEM Admin. Code r. 335-3-16-.05(c) and 335-3-1-.04)

- The facility shall comply with the recordkeeping and reporting requirements of CSAPR.

(ADEM Admin. Code r. 335-3-5-.31, 335-3-5-.35, 335-3-8-.33, 335-3-

8-.37, 335-3-8-.65, and 335-3-8-.69)

Cross-State Air Pollution Rule

- These units are subject to the applicable provisions of Cross-State Air Pollution Rule (CSAPR) to include all applicable provisions of the SO₂ Group 2 Trading Program requirements.

(ADEM Admin. Code r. 335-3-5-.06 through 335-3-5-.36)

- These units are subject to the applicable provisions of Cross-State Air Pollution Rule (CSAPR) to include all applicable provisions of the NO_x Annual Trading Program requirements.

(ADEM Admin. Code r. 335-3-8-.07 through 335-3-8-.65)

Existing Emergency RICE Engines

These RICE engines are subject to 40 CFR 63, Subpart ZZZZ, because they were manufactured before the applicability dates in 40 CFR Part 60 Subpart IIII. These engines are not subject to 40 CFR Part 60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines) because these generators were manufactured before the applicability date of April 1, 2006. These emergency generators are subject to the applicable requirements in 40 CFR Part 63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE)). The following RICE engines are considered Subpart ZZZZ:

| Description | HP |
|--------------------------------------|-----------|
| McWilliams Emergency Fire Water Pump | 165 |
| Vann Emergency Fire Water Pump | 225 |
| Vann Emergency Backup | 670.5 |

The expected emissions and the associated standards for the RICE engines are listed below.

NSPS Subpart IIII

Subpart IIII applies to owners and operators of engines that commence construction after July 11, 2005, where the engines are manufactured on or after July 1, 2006. This compression ignition firewater pump was manufactured before April 1, 2006 therefore Subpart IIII does not apply.

(40 CFR Part 60 Subpart IIII, §60.4200(a)(3))

MACT Subpart ZZZZ

Emission Standards

- This unit is subject to the applicable requirements listed in Table 2d of 40 CFR 63 Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

(40 CFR Part 63 Subpart ZZZZ, §63.6602)

- The Permittee must operate and maintain this unit according to the manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

(40 CFR Part 63 Subpart ZZZZ, §63.6625(e)(3))

- The Permittee must install a non-resettable hour meter for each unit if one is not already installed.

(40 CFR Part 63 Subpart ZZZZ, §63.6625(f))

- This unit may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of this unit is limited to 100 hours per year. There is no time limit on the use of this unit in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. This unit may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. Any operation other than

emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in 40 CFR 63 Subpart ZZZZ, is prohibited.

(40 CFR Part 63 Subpart ZZZZ, §63.6640(f))

Expected Emissions

The expected emissions are based on AP-42 emission factors, manufacturer's certifications, and a maximum operation of 500 hours per year. The expected emissions of the firewater pump engine subject to Subpart ZZZZ – Existing Firewater Pump Emergency Engines are shown below:

| Pollutant | 165 HP Firewater Pump | | 225 HP Firewater Pump | | 670.5 HP Emergency Generator | | Total |
|--------------------------------------|-----------------------|-------|-----------------------|-------|------------------------------|--------|--------|
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | TPY |
| PM ₁₀ / PM _{2.5} | 0.36 | 0.091 | 0.084 | 0.021 | 1.48 | 0.369 | 0.481 |
| SO ₂ | 0.34 | 0.085 | 0.46 | 0.115 | 1.37 | 0.344 | 0.544 |
| NO _x | 5.12 | 1.28 | 3.68 | 0.92 | 20.79 | 5.20 | 7.4 |
| CO | 1.10 | 0.276 | 0.43 | 0.108 | 4.48 | 1.120 | 1.504 |
| VOC | 0.41 | 0.10 | 0.13 | 0.033 | 1.69 | 0.421 | 0.554 |
| CO _{2e} | 188.27 | 47.07 | 256.74 | 64.18 | 765.08 | 191.27 | 302.52 |

MACT Monitoring

The Permittee shall perform the following activities:

- (a) Change oil and filter every 500 hours of operation or annually, whichever comes first;
- (b) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first;
- (c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Or utilize an oil analysis program as describe in §63.6625(i) or §63.6625(j).

(40 CFR Part 63 Subpart ZZZZ, Table 2d & §63.6625(i))

If an oil analysis program is utilized for a stationary compression ignition engine, the Permittee must perform the oil analysis at the same frequency specified above for changing the oil. The Permittee must at a minimum analyze the following parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new, viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new, or percent water content (by volume) is greater than 0.5. If any of the limits are exceeded, the Permittee must change the oil within 2 business days of receiving the results of the analysis or before commencing operation, whichever is later.

(40 CFR Part 63 Subpart ZZZZ, §63.6625(i))

CAM

These sources are uncontrolled; therefore, CAM does not apply.

Recordkeeping and Reporting

The Permittee must keep records of the parameters that are analyzed as part of the oil analysis program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. These records shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

(40 CFR Part 63 Subpart ZZZZ, §63.6625(i))

The Permittee must keep records of the maintenance conducted on these units in order to demonstrate that you operated and maintained these units and after-treatment control device (if any) according to your own maintenance plan or according to manufacturer's written instructions. These records shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

(40 CFR Part 63 Subpart ZZZZ, §63.6655(e))

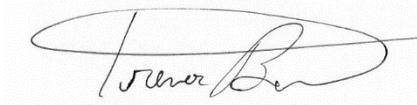
The Permittee must keep records of the hours of operation of each engine that is recorded through the non-resettable hour meter. The facility must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. These

records shall be maintained in a manner suitable for inspection for a period of 5 years from record generation.

(40 CFR Part 63 Subpart ZZZZ, §63.6655(f))

Recommendation:

Based on the above analysis and pending the resolution of any comments received during the 30-day public comment period and 45 day EPA review, I recommend issuing the attached renewal MSOP for Power South, McWilliams Power Plant.



Trevor Baird
Industrial Minerals Section
Energy Branch
Air Division

May 26, 2016
Date